CLAIMS

I claim:

1. A white light LED, comprising:

a semiconductor body formed of a semiconductor layer sequence emitting electromagnetic radiation in a blue spectral range when a forward bias is applied thereto;

a luminous material encompassing said semiconductor body, the luminous material being photoexcited by the electromagnetic radiation emission of the semiconductor body; and

a chromaticity coordinate-converting casting compound encompassing at least part of the semiconductor body and the luminous material;

wherein the LED device has a resultant white light output.

2. The white light LED according to claim 1, wherein said casting compound comprises a transparent epoxy resin having a tint of predetermined color disposed in said resin.

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3. The white light LED according to claim 2, wherein said tint is a polycarbonate compatible tint, wherein said tint converts a wavelength falling within a blue wavelength range into a relatively longer wavelength.

4. The white light LED according to claim 1, wherein said semiconductor body is a blue light emitting semiconductor body.

5. The white light LED according to claim 1, wherein said luminous material is a phosphor exhibiting a yellow luminescence when photoexcited by the electromagnetic radiation emission of said semiconductor body.

6. The white light LED according to claim 1, wherein said luminous material is a Ce-doped phosphor.

7. The white light LED according to claim 1, wherein said blue light emitting semiconductor body and said luminous material emits an output wavelength in the blue-yellow spectrum.

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8. The white light LED according to claim 1, wherein said white light output has an approximate correlated color temperature (CCT) between 2,300 and 3,300 Kelvin.

9. The white light LED according to claim 1, wherein said white light output has approximate chromaticity coordinates of X-.466 and Y-.442.

10. The white light LED according to claim 1, wherein said white light output has a nominal color rendering index (CRI) of 85.

11. A chromaticity coordinate-converting casting composition for die-level and mixed die white LEDs, the casting composition comprising:

a transparent epoxy resin; and

a polycarbonate compatible tint dispersed in said transparent epoxy resin, wherein the tint converts a wavelength falling within a blue wavelength range into a longer wavelength.

12. The casting composition according to claim 11, wherein said tint is inert to said transparent epoxy resin and die chemicals.

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13. The casting composition according to claim 11, wherein said tint is chemically stabilized against ultraviolet light.

14. The casting composition according to claim 11, wherein said tint is heat-resistant.

15. The casting composition according to claim 11, wherein said casting composition has chromaticity coordinates approximately equal to X-.464, Y-.350 and a color temperature of about 1900 Kelvin.

16. The casting composition according to claim 11, wherein said tint and said epoxy resin have a dilution ration of approximately 50:1.

17. The casting composition according to claim 11, wherein said tint has a formula range of L*65.77 - a*41.27 - b*62.57 ± 5.

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18. The casting composition according to claim 11, wherein said tint shifts the output correlated color temperature from about 6,000 Kelvin to about 3,000 Kelvin.

19. A method of adjusting the chromaticity coordinates and color rendering indices of a white LED, the method comprising the step of encapsulating said LED with a chromaticity coordinate altering compound.

20. The method according to claim 19, further including the step of forming said chromaticity coordinate altering compound by diluting polycarbonate compatible tint, having a CIE-Lab formula range of L*65.77 - a*41.27 - b*62.57 plus or minus 5, with clear epoxy resin with a dilution ratio of 50:1.

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